NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE SPECIFICATION

PASTURE AND HAY PLANTING

(acre)
CODE 512

SCOPE

This document establishes the technical details, workmanship, and quality and extent of materials required to install the practice in accordance with the Conservation Practice Standard. The information shall be considered when preparing site-specific specifications for the practice.

The site-specific specifications for installing, operating, and maintaining the practice on a specific field or treatment unit shall be documented via the NRCS Hawaii Jobsheet for this practice and given to the client. Other documents such as practice worksheets, maps, drawings, and narrative statements in the conservation plan may be used to plan or design the practice and to prepare the site-specific specifications.

SPECIES SELECTION

Refer to Table 1 for adapted forage plants, seeding or planting rates and rainfall and elevation requirements.

ESTABLISHMENT

Seeding

Seedbed Preparation

Seedbed preparation shall consist of plowing or ripping, followed by disking where soil conditions permit. Prepare a firm seedbed. Use no-till seeding methods and equipment, where practicable. If planting large areas of sloping land and no-till is not possible, establish new plantings in increments or in strips alternating with undisturbed areas to minimize erosion.

Seeding Method

Seeding may be accomplished by either broadcasting, drilling, or aerial application.

Where seed is broadcast, dragging the area with a heavy rope, chain, or light plank will help to ensure good soil-seed contact.

Depth of seeding depends on seed size, soil moisture and soil texture. A general recommendation is to plant 1/4-1/2 inch deep on medium - to fine textured soils and 1/2 -1 inch deep on course - textured soils. Plant deeper when soil moisture is low and shallow when moisture is abundant. Large seeds are generally planted deeper than small seeds.

Vegetative

Land Preparation and Planting Methods

Where terrain permits the use of heavy equipment, land preparation will be the same as for seedbed preparation described above. Vegetative material should be evenly distributed on the prepared ground and disked in.

For a more positive placement of the vegetative material, seedbed preparation may be followed by plowing furrows at a maximum depth of 6 inches and a maximum spacing of 6 feet apart. Vegetative material is then placed in the furrows at a maximum spacing of 6 feet between sprigs. Cover the material with soil by disking, or other suitable means, in the direction of the furrow; then compact lightly to ensure good plant-soil contact.

Dense plantings will produce a quicker stand of grass with less weeds. Unless planting material is limited, make the furrows about 3 feet apart and place the stolons, sprigs or rhizomes as close as practicable in the furrows.

Where terrain restricts the use of heavy equipment, the minimum site preparation shall consist of providing 6-inch deep holes at the maximum spacing shown in Table 1 for vegetative material. Fertilize according to soil test recommendations. Place the recommended amount of fertilizer in each hole and cover with approximately 1 inch of soil. Sprigs should be inserted at least 5 inches in the hole. The sprigs should have a minimum of two nodes. The hole should then be filled with soil and compacted to ensure good plant-soil contact.

Adequate moisture is critical for successful planting. Plant only after the rainy season has begun or provide irrigation until the plants are well established.

Where topography permits, seedbed or site preparation, seeding and vegetative planting shall be cross sloped or on the contour to minimize erosion hazard.

Interseeding Legumes

Where the intent is to establish legumes in an existing grass pasture or hayland, use a no-till drill or broadcast the legume seed into the grass at the seeding rate given in Table 1. Use a disc to cover seed or graze livestock using high numbers and a short grazing period to trample seed into the ground.

This type of seeding must be part of a grazing management system that permits adequate control of the livestock. Refer to the practice standard for **Prescribed Grazing** (Code 528A).

Rotary or flail mowers may be used where terrain permits.

Fertilization

The **Nutrient Management** (Code 590) standard and specification must be used when working with the land user on a fertilizer program.

Fertilizer and other amendments should be applied according to soil test results and recommendations.

MANAGEMENT

Newly planted pastures or hayland shall not be grazed or harvested until the stand is well established and has reached the minimum height and stage of growth given in the standard and specification for **Prescribed Grazing** (Code 528A).

WEED CONTROL

Mechanical mow with a rotary or flail mower when the weeds overtop a newly planted pasture or hayland. Mow above the forage plants, if possible. Mow between grazings on an established pasture.

Chemical (do not use when a full cover of desirable legumes is present unless legumes are tolerant to the herbicide used). The **Pest Management** (Code 595) standard and specification must be used when working with the land user on a weed control program.

Herbicide users should be cautioned as follows: If herbicides are handled or applied improperly, or if unused portions are not disposed of safely, they may be injurious to humans, domestic animals, desirable plants, fish, or other wildlife and they may contaminate nearby crops and other vegetation. Follow the directions and heed all precautions on the container label.

Cooperators should be aware of and adhere to the provisions of state and federal laws and regulations concerning the use of agricultural chemicals.

Spot Control of Undesirable Weeds

Use appropriate chemicals according to manufacturer's recommendations, treating individual weeds or patches of weeds carefully, avoiding the desired species.

Wick Applications

Use appropriate chemicals according to manufacturer's recommendations on weeds that are at least 6 inches taller than the desired species.

SEEDING MIXTURES

Where more than one species is to be seeded, reduce the seeding rate for each species in proportion to the number of species in the mixture.

TABLE 1. ADAPTED GRASSED AND LEGUMES **

GRASSES/CULTIVARS	Rainfall range (inches)	Elevation Range (feet)	Seeding 1/ rate (lbs PLS/ac)
giant bermudagrass: 'NK-37' (*Cynodon dactylon*)	15-50	0-3,000	2
Buffelgrass: 'T-4464', 'Gayndah' *(Cenchrus ciliaris*)	12-35	0-1,000	2
'Biloela', 'Nueces'	12-35	0-1,500	2
'Molopo'	12-35	0-3,000	2
Dallisgrass (*Paspalum dilatatum*)	35-100	0-6,000	6
Green panicgrass: 'Petrie' (*Panicum maximum var. trichoglume*)	20-70	0-2,500	2
Guineagrass (*Panicum maximum*)	35+	0-2,500	2
Kikuyugrass: 2/ 'Whittet', 'Noonan' *(Pennisetum clandestinum)*	40+	0-6000	1
Lovegrass, kawelu, 'emo loa 3/ (*Eragrostis variabilis*)	20-70	0-2000	2
Orchardgrass (*Dactylis glomerata*)	40-100	3,000-7,000	4
Piligrass 3/) (*Heteropogon contortus*	15-35	0-1,500	2
Perennial ryegrass: 'Linn', 'Tetraploid' *(Lolium perenne*)	40-100	2,500-7,000	5
Rhodesgrass: 'Bell', 'Katambora' (*Chloris gayana*)	25-40	0-1,500	2
Signalgrass: 'Basilick') (*Brachiaria decumbens)*	50+	0-3,000	3

TABLE 1. CONTINUED

LEGUMES/CULTIVARS 4/	**Rainfall range (inches)**	**Elevation Range (feet)**	**Seeding 1/ rate (lbs PLS/ac)**
Big trefoil: 'Grasslands Maku' (*Lotus pedunculatus*)	40+	1500-1600	2
Kaimi clover) (*Desmodium canum*	60-150	0-3000	2
white clover: 5/ 'Haifa', 'Grasslands Huia' (*Trifolium repens*)	35-80	1500-1700	2
Siratro (*Macroptilium atropurpureum)*	20-70	0-2,500	2
Stylo: 'Cook', 'Schofield', 'Endeavour' (*Stylosanthes guianensis*)	50+	0-3,000	2
GRASSES NORMALLY ESTABLISHED VEGETATIVELY			
Kikuyugrass (*Pennisetum clandestinum*)	40+	0-6,000	*
Limpograss: 'Bigalta' (*Hemarthria altissima*)	60+	0-4,000	*
Napiergrass: 'Mott' (*Pennisetum purpureum*)	40+	0-3,000	*
Digitgrass: 'Mealani', 'Pangola' (common) (*Digitaria decumbens)*	40+	0-3,500	*
Paragrass (californiagrass) 6/ (*Brachiaria mutica*)	40+	0-2,000	*
Stargrass: 'Florico' (puerto rican) *(Cynodon nlemfuensis*)	15-80	0-3,000	*
Stargrass: "South Point" (*Cynodon plectostachyus*)	15-80	0-3,000	*

* For hand planting or planting in furrows, place sprigs in ground at maximum spacing of 6'X6'.
* For disked-in plants, use 40 bushels of material per acre. 7/

1/ Minimum seeding rate, PLS (Pure Live Seed): The amount PLS is equal to percentage of purity, multiplied by percentage of germination plus hard or otherwise sound seed--that is if a buffelgrass tag states 50% purity and 50% germination, then 50 X 50 divided by 100 = 25% PLS; and the seeding rate should be 8 lbs. bulk seed per acre. The recommended seeding rate in pounds (2) divided by percent PLS (25) equals the actual seeding rate in pounds (8).

2/ Seed commercially available with required Federal permit. Permit forms are available from commercial seed suppliers.

3/ Native to Hawaii.

4/ Legumes must be inoculated with the correct *Rhizobium* culture before seeding.

5/ Will not tolerate highly acid soils (stronger than pH 5.5).

6/ Prefers wet soil.

7/ One bushel equals 1.25 cu.ft. or about 15 pounds.

** Note: Cultivars indicated have been tried successfully; however, others may be satisfactory. This list is not all-inclusive. Other species may be selected for this practice based on prescriptions by qualified technical specialists and with approval of the NRCS Hawaii State Resource Conservationist.